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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,520	10/24/2003	Alex Long	4006-271	9118
22429	7590	02/06/2006	EXAMINER	
LOWE HAUPTMAN GILMAN AND BERNER, LLP 1700 DIAGONAL ROAD SUITE 300 /310 ALEXANDRIA, VA 22314			MARCHESCHI, MICHAEL A	
			ART UNIT	PAPER NUMBER
			1755	

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,520

Applicant(s)

LONG, ALEX

Examiner

Michael A. Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7,9-15,17-21,23-32,34-39,41-50,52-56 and 59-64 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 29-32,34-39 and 41-43 is/are allowed.
6) ☒ Claim(s) 1,2,4-7,10-15,17-21,24-28,44-50,52-56 and 60-64 is/are rejected.
7) ☒ Claim(s) 9,23 and 59 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

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The indicated allowability of all the claims, except claim 29 and its dependents, defined in the previous office action is withdrawn in view of the newly discovered reference(s) to Lawing. Rejections based on the newly cited reference(s) follow.

Claims 12, 26, 44, 45, 46 and 62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The new matter added to claims 12, 26, 44, and 62 is the limitation “between the steps of forming the binding layer and removing the **substrate** because the specification, as filed, never defines that this heating process occurs before removing the **substrate**. The specification and original claims define that this heating process occurs before removing the **base layer** and not the substrate.

The new matter added to claims 45 and 46 is the limitation “after removing the fixation layer because the specification, as filed, never defines that the protective layer is formed after the fixation layer is removed. The specification and original claims define that protective layer is formed after removing the **substrate and base layer** and not the fixation layer (applicants are reminded that the independent claim defines 2 base layers).

Claims 1,2, 4-7, 13-15, 17-21, 27, 28, 47-50, 52-56 and 63-64 are rejected under 35 U.S.C. 103(a) as obvious over Lawing (401).

The reference teaches in sections [0010], [0023]-[0027], [0034]-[0036], the figures and the claims, placing abrasive grains (diamond, etc.) on a flat surface (broadly reads on a substrate), forming a temporary holding layer which can be a metal or polymer-see claim 12 (this reads on claimed base layer), forming a permanent holding layer thereon which can be a braze alloy nickel or a sintering metal alloy (this reads on the claimed binding layer), separating the flat surface from the temporary layer (reads on claimed removal of substrate) and separating the temporary holding layer from permanent holding layer (reads on claimed removal of base layer).

Although the reference does not specifically teach that the base layer is removed by wet etching, the reference states that the temporary metal or polymer holding material (claimed base layer) is removed by dissolving and dissolving broadly reads on wet etching absent evidence to the contrary. Although the reference does not specifically teach that the flat surface is removed by grinding or wet etching, it is the examiners position that if a metal or soluble is used as the temporary holding layer, one skilled in the art would have appreciated the removal techniques need to remove a flat surface from a metal (i.e. if the metal or polymer is a holding layer some kind of bonding is apparent, thus the skilled artisan would have appreciated the techniques required to remove the flat surface from a bond layer (i.e. dissolving the bond or other technique). With respect to claim 5 although the reference does not define the metal used for the temporary holding layer, it is the examiners position that the recitation of a metal for this layer broadly encompasses the claimed material (species). With respect to claims 6 and 7, these claims do not define definite limitations that must be part of the independent claim (i.e. the term "when" does not define a positive limitation). For example, since the reference teaches that the particles can either be diamond or boron nitride, instant claim 6 is not a positive limitation if the

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reference particles are boron nitride and instant claim 7 is not a positive limitation if the reference particles are diamond. However, the reference implies that the permanent holding layer (claimed binding layer) can be any braze alloy. With respect to claim 13, the reference clearly states that a corrosion barrier is applied over the exposed matrix (i.e. abrasive and permanent holding layer). Although the reference does not specifically teach how the barrier is applied, it is the examiners position that one skilled in the art would have appreciated the techniques required to deposit a metal alloy or other corrosion resistant films. In view of this the scope of claims 1, 2, 4-7, 13 and 14 are met.

With respect to claim 15, in addition to the reference teaching above, the reference teaches in section [0037] and shows in the corresponding figures that additional abrasives are placed between 2 other particles and since the claimed abrasive particles and the corrosion resistant particles can be the same (see instant specification), this broadly reads on the claimed "filling of gaps" limitation. The reference also states that a second temporary holding layer is used to hold the additional abrasive and this reads on the claimed fixation layer. As seen in figure 3F, the second temporary holding layer (claimed fixation layer) is also removed along with the first temporary holding layer. Although the reference does not specifically teach that the second temporary layer is removed by wet etching, this removal technique is clearly within the scope of the reference because the reference states that the temporary holding material is removed by dissolving and dissolving broadly reads on wet etching absent evidence to the contrary. Although this is specifically defined for the first temporary holding layer, one skilled in the art would have appreciated that this technique is also applicable to the second holding material. Although the reference does not specifically teach that the flat surface is removed by

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grinding or wet etching, it is the examiners position that if a metal or soluble is used as the temporary holding layer, one skilled in the art would have appreciated the removal techniques need to remove a flat surface from a metal (i.e. if the metal or polymer is a holding layer some kind of bonding is apparent, thus the skilled artisan would have appreciated the techniques required to remove the flat surface from a bond layer (i.e. dissolving the bond or other technique). With respect to claim 18 although the reference does not define the metal used for the temporary holding layer, it is the examiners position that the recitation of a metal for this layer broadly encompasses the claimed material (species). With respect to claims 19 and 20, these claims do not define definite limitations that must be part of the independent claim (i.e. the term "when" does not define a positive limitation). For example, since the reference teaches that the particles can either be diamond or boron nitride, instant claim 19 is not a positive limitation if the reference particles are boron nitride and instant claim 20 is not a positive limitation if the reference particles are diamond. However, the reference implies that the permanent holding layer (claimed binding layer) can be any braze alloy. With respect to claim 27, the reference clearly states that a corrosion barrier is applied over the exposed matrix (i.e. abrasive and permanent holding layer). Although the reference does not specifically teach how the barrier is applied, it is the examiners position that one skilled in the art would have appreciated the techniques required to deposit a metal alloy or other corrosion resistant films. In view of this the scope of claims 15, 17-21 and 27-28 are met.

With respect to claims 47-48, these claims use a mesh material and the reference clearly defines this (section [0023] defines using a screen prior to forming the temporary holding layer (i.e. screen on the flat surface)). With respect to the removal of the screen, if the flat surface is

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removed, it is the examiners position that the screen must be removed. The other limitations are essentially the same as that of claim 15, thus the comments defined above are incorporated by reference. With respect to claim 50, the reference states that screen is used to hold the particles in a desired orientation, thus broadly reading on any orientation, including the claimed one. In addition, since the particles determined the abrading characteristics, and the flat layer on which the particles are placed on is removed, the orientation to have tips of the abrasive point down toward the flat surface is clearly within the scope of the skilled artisan because the tips will form the abrading surface of the article once the flat surface is removed. With tips defining the abrading surface, the abrading properties will be enhanced absent evidence to the contrary. With respect to claim 53 although the reference does not define the metal used for the temporary holding layer, it is the examiners position that the recitation of a metal for this layer broadly encompasses the claimed material (species). With respect to claims 54 and 55, these claims do not define definite limitations that must be part of the independent claim (i.e. the term "when" does not define a positive limitation). For example, since the reference teaches that the particles can either be diamond or boron nitride, instant claim 54 is not a positive limitation if the reference particles are boron nitride and instant claim 55 is not a positive limitation if the reference particles are diamond. However, the reference implies that the permanent holding layer (claimed binding layer) can be any braze alloy. With respect to claim 63, the reference clearly states that a corrosion barrier is applied over the exposed matrix (i.e. abrasive and permanent holding layer). Although the reference does not specifically teach how the barrier is applied, it is the examiners position that one skilled in the art would have appreciated the

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techniques required to deposit a metal alloy or other corrosion resistant films. In view of this the scope of claims 47-50, 52-56 and 63-64 are met.

Claims 10, 11, 24, 25, 60 and 61 are is rejected under 35 U.S.C. 103(a) as obvious over Sung et al.(234) as applied to claims 1, 15 and 49 above and further in view of Chen et al. (865).

Chen et al. teaches that column 3, lines 35 that roughening the surface or superabrasive particles (by the claimed methods) improves the bonding performance (adherence) between the particle and the coating material.

Although the secondary reference is directed to improving the adherence between the particle and the coating on the particle, it is the examiners position that one skilled in the art would have appreciated the same principle for affixing particles (i.e. more surface area will improve the bond strength due to increased reactivity). In view of this one skilled in the art would have found it obvious to surface roughen the particle according to the primary reference in order to maximize the bonding performance between the particles and the bonding layer, this concept clearly being disclosed and/or suggested by the secondary reference.

Claims 29-32, 34-39 and 41-43 are allowable over the prior art of records because the prior art of records fails to teach or suggest a method of making an abrasive article which comprises all of the claimed specific steps. Specifically, the removal steps. DeVoe et al., An, Peterson et al., and Holmes et al. all teach conventional methods of making abrasive articles (substrate coated with a make coat, abrasive particle and a size coat) but fails to defining the claimed removal steps and use of padding particles (i.e. filler). Marecki and Altman disclose

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methods of making retro reflective sheets, said methods comprises specific removal application.

These references are, however, **not** method of making abrasive articles (i.e. no abrasive particles even present).

Claims 9, 23 and 59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 12, 26, 44, 45, 46 and 62 would be allowable if amended to overcome the 112 rejections for the reasons defined above.

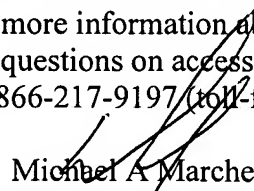
Applicant's arguments with respect to claims 1-64 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-12331233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

2/3/06
MM


Michael A. Marcheschi
Primary Examiner
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